

In the Claims:

1. (Currently Amended) An apparatus, comprising:
a slot section having electrically conductive material which defines a slot with first and second ends;
an electrically conductive element extending generally transversely to said slot in the region of said first end thereof; and
a balun portion communicating with said first end of said slot, said balun portion having a high impedance and being configured to provide a selected degree of absorption of co-polarized electromagnetic energy.
2. (Original) An apparatus according to Claim 1, wherein said degree of absorption is selected so that a percentage of energy which arrives through said conductive element and is absorbed is within a range of approximately 5% to 20%.
3. (Original) An apparatus according to Claim 2, wherein said percentage of energy is with a range of approximately 9% to 15%.
4. (Original) An apparatus according to Claim 3, wherein said percentage of energy is substantially 12%.
5. (Original) An apparatus according to Claim 1, wherein said balun portion includes a resistive portion which facilitates said selected degree of absorption of electromagnetic energy.
6. (Original) An apparatus according to Claim 5, wherein said resistive portion includes a sheetlike portion which extends approximately transversely to a centerline of said slot, and which is spaced from said first end of said slot.

7. (Currently Amended) ~~An apparatus according to Claim 5,~~ An apparatus,
comprising:

a slot section having electrically conductive material which defines a slot with first
and second ends;

an electrically conductive element extending generally transversely to said slot in the
region of said first end thereof;

a balun portion communicating with said first end of said slot, said balun portion
having a high impedance and being configured to provide a selected degree of absorption of
electromagnetic energy;

wherein said balun portion includes a resistive portion which facilitates said selected
degree of absorption of electromagnetic energy; and

wherein said resistive portion includes a plurality of sheetlike portions which each
extend approximately transversely to a centerline of said slot, and which are spaced from said
first end of said slot by respective different distances.

8. (Original) An apparatus according to Claim 5, wherein said balun portion
includes a filler portion made of a material with a low dielectric constant.

9. (Original) An apparatus according to Claim 8,
wherein said resistive portion includes a sheetlike portion which extends
approximately transversely to a centerline of said slot, and which is spaced from said first
end of said slot; and

wherein said filler portion includes first and second sections which are disposed on
opposite sides of said sheetlike portion.

10. (Original) An apparatus according to Claim 8,
wherein said resistive portion includes first and second sheetlike portions which each extend approximately transversely to a centerline of said slot, and which are spaced from said first end of said slot by respective different distances; and

wherein said filler portion includes first, second and third sections, said first sheetlike portion being disposed between said first and second sections, and said second sheetlike portion being disposed between said second and third sections.

11. (Currently Amended) ~~An apparatus according to Claim 5,~~ An apparatus,
comprising:

a slot section having electrically conductive material which defines a slot with first and second ends;

an electrically conductive element extending generally transversely to said slot in the region of said first end thereof;

a balun portion communicating with said first end of said slot, said balun portion having a high impedance and being configured to provide a selected degree of absorption of electromagnetic energy;

wherein said balun portion includes a resistive portion which facilitates said selected degree of absorption of electromagnetic energy; and

wherein said balun portion includes an electrically conductive portion which, within a plane containing the centerline of said slot, extends completely around said resistive portion, except where said first end of said slot communicates with said balun portion.

12. (Currently Amended) ~~An apparatus according to Claim 5,~~ An apparatus, comprising:

a slot section having electrically conductive material which defines a slot with first and second ends;

an electrically conductive element extending generally transversely to said slot in the region of said first end thereof;

a balun portion communicating with said first end of said slot, said balun portion having a high impedance and being configured to provide a selected degree of absorption of electromagnetic energy;

wherein said balun portion includes a resistive portion which facilitates said selected degree of absorption of electromagnetic energy; and

wherein said balun portion includes:

a filler portion made of a material with a low dielectric constant; and

an electrically conductive portion which, within a plane containing the centerline of said slot, extends completely around said resistive portion and said filler portion, except where said first end of said slot communicates with said balun portion.

13. (Currently Amended) An apparatus, comprising:

a slot section having electrically conductive material which defines a plurality of slots that each have a first end and a second end;

a plurality of electrically conductive elements which each extend generally transversely to a respective said slot in the region of said first end thereof; and

a plurality of balun portions which each communicate with said first end of a respective said slot, each said balun portion having a high impedance and being configured to provide a selected degree of absorption of co-polarized electromagnetic energy.

14. (Original) An apparatus according to Claim 13, wherein said degree of absorption is selected so that a percentage of energy which arrives through each said conductive element and is absorbed is within a range of approximately 5% to 20%.

15. (Original) An apparatus according to Claim 14, wherein said percentage of energy is with a range of approximately 9% to 15%.

16. (Original) An apparatus according to Claim 15, wherein said percentage of energy is substantially 12%.

17. (Original) An apparatus according to Claim 13, wherein each said balun portion includes a resistive portion which facilitates said selected degree of absorption of electromagnetic energy.

18. (Original) An apparatus according to Claim 17,
wherein said slots have centerlines which are all approximately parallel to each other;
and

including a sheet of resistive material which is spaced from said first end of said slot, which extends approximately transversely to the centerlines of said slots, and which has a plurality of portions that each serve as said resistive portion of a respective said balun portion.

19. (Currently Amended) ~~An apparatus according to Claim 17,~~ An apparatus,
comprising:
a slot section having electrically conductive material which defines a slot with first
and second ends;
an electrically conductive element extending generally transversely to said slot in the
region of said first end thereof;
a balun portion communicating with said first end of said slot, said balun portion
having a high impedance and being configured to provide a selected degree of absorption of
electromagnetic energy;
wherein each said balun portion includes a resistive portion which facilitates said
selected degree of absorption of electromagnetic energy;
wherein said slots have centerlines which are all approximately parallel to each other;
and
including a plurality of sheets of resistive material which are spaced from said first
end of said slot by respective different distances, which each extend approximately
transversely to the centerlines of said slots, and which each have a plurality of portions that
each serve as part of said resistive portion of a respective said balun portion.

20. (Original) An apparatus according to Claim 17, wherein each said balun portion
includes a filler portion made of a material with a low dielectric constant.

21. (Currently Amended) ~~An apparatus according to Claim 20,~~ An apparatus,
comprising:

a slot section having electrically conductive material which defines a slot with first
and second ends;

an electrically conductive element extending generally transversely to said slot in the
region of said first end thereof;

a balun portion communicating with said first end of said slot, said balun portion
having a high impedance and being configured to provide a selected degree of absorption of
electromagnetic energy;

wherein each said balun portion includes a filler portion made of a material with a
low dielectric constant;

wherein said slots have centerlines which are all approximately parallel to each other;
including a sheet of resistive material which is spaced from said first end of said slot,
which extends approximately transversely to the centerlines of said slots, and which has a
plurality of portions that each serve as said resistive portion of a respective said balun
portion; and

including first and second layers which are made from said material with said low
dielectric constant and which each include a plurality of sections that each serve as a part of
said filler portion of a respective said balun portion, said sheet of resistive material being
disposed between said first and second layers.

22. (Original) An apparatus according to Claim 20,
wherein said slots have centerlines which are all approximately parallel to each other;
including first and second sheets of resistive material which are spaced from said first
end of said slot by respective different distances, which each extend approximately
transversely to the centerlines of said slots, and which each have a plurality of portions that
each serve as part of said resistive portion of a respective said balun portion; and
including first, second and third layers which are made from said material with said
low dielectric constant, and which each include a plurality of sections that each serve as a
part of said filler portion of a respective said balun portion, said first sheet being disposed
between said first and second layers and said second sheet being disposed between said
second and third layers.

23. (Original) An apparatus according to Claim 17,
including an electrically conductive layer which extends approximately transversely
to the centerlines of said slots and which is disposed on a side of said balun portions remote
from said slots; and
including a plurality of electrically conductive parts which are spaced from each
other, which each extend approximately parallel to the centerlines of said slots, and which are
electrically coupled to said electrically conductive layer and to the electrically conductive
material of said slot section;
wherein each said balun portion includes portions of two of said parts and a portion of
said electrically conductive layer which collectively serve as an electrically conductive
portion that, within a plane containing the centerline of the associated slot, extends
completely around said resistive portion of that balun portion, except where said first end of
the associated slot communicates with that balun portion.

24. (Original) An apparatus according to Claim 23, including a plurality of coaxial
feeds which extend through said electrically conductive parts and which each have a center
conductor with a portion that serves as a respective said electrically conductive element.

25. (Original) An apparatus according to Claim 17,
wherein each said balun portion includes a filler portion made of a material with a low dielectric constant;
including an electrically conductive layer which extends approximately transversely to the centerlines of said slots and which is disposed on a side of said balun portions remote from said slots; and
including a plurality of electrically conductive parts which are spaced from each other, which each extend approximately parallel to the centerlines of said slots, and which are electrically coupled to said electrically conductive layer and to the electrically conductive material of said slot section;
wherein each said balun portion includes portions of two of said parts and a portion of said electrically conductive layer which collectively serve as an electrically conductive portion that, within a plane containing the centerline of the associated slot, extends completely around said resistive portion and said filler portion of that balun portion, except where said first end of the associated slot communicates with that balun portion.

26. (Currently Amended) A method of operating an apparatus which includes a slot section having electrically conductive material which defines a slot with first and second ends, an electrically conductive element extending generally transversely to said slot in the region of said first end thereof, and a balun portion communicating with said first end of said slot, comprising:

configuring said balun portion to have a high impedance; and
absorbing a selected degree of co-polarizing electromagnetic energy in said balun portion.

27. (Original) An apparatus according to Claim 26, including selecting said degree of absorption so that a percentage of energy which arrives through said conductive element and is caused to travel through said slot toward said second end thereof is within a range of approximately 80% to 95%.

28. (Original) An apparatus according to Claim 27, wherein said selecting of said degree of absorption is carried out so that said percentage of energy is within a range of approximately 85% to 90%.

29. (Original) An apparatus according to Claim 28, wherein said selecting of said degree of absorption is carried out so that said percentage of energy is substantially 88%.

30. (Original) An apparatus according to Claim 26, including configuring said balun portion to include a resistive portion which facilitates said selected degree of absorption of electromagnetic energy.

31. (Original) An apparatus according to Claim 30, including configuring said balun portion to include a filler portion made of a material with a low dielectric constant.